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ABSTRACT

Research reported dealt with a national survey on the allocation of funds to colleges by the College Science Improvement Program (COSIP). Of 94 colleges eligible to receive COSIP grants, 29 had been awarded grants. Questionnaires were sent to students of the eligible institutions while they were freshmen and again when they were seniors. Institutional characteristics, such as enrollment, selectivity level, percentage of Ph.D.'s on the staff, and number of volumes in the library were also included in the analysis. Analysis of the data led to the correlation of selectivity, faculty quality, and affluence with the institutions receiving a COSIP grant; with the percentage of Ph.D.'s on the staff being most significant. In addition to these characteristics, grant recipients were likely to be nonsectarian liberal arts colleges which were relatively progressive. The students at these schools tended to be male and Protestant with superior academic records. They had high professional aspirations and a strong orientation toward science. (JG)

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On The Allocation of Federal Funds for Science Education

DAVID E. DREW

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ON THE ALLOCATION OF FEDERAL FUNDS FOR SCIENCE EDUCATION

A Case Study of the NSF College Science Improvement Program

David E. Drew

American Council on Education

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On the Allocation of Federal Funds for Science Education[1]

A Case Study of the NSF College Science Improvement Program

Massive Federal expenditures for science research and development have been commonplace since World War II and the spectacular technical success of the Manhattan project. Shortly after the war the case for continued government support of basic science research was made by Vannevar Bush (1945) and others; the major organization which grew out of this Federal concern was the National Science Foundation. Subsequently the late fifties (and the voyage of Sputnik) saw science education become a national priority. That period spawned a wide array of measures in support of science education, e.g., the National Defense Education Act.

The passage of time brought increased governmental concern with monitoring and evaluating federally supported programs and a reluctance to simply underwrite projects with a blank check. Thus, for example, the landmark 1965 Elementary and Secondary Education Act (ESEA) contained measures requiring evaluation of projects it was launching. The present research grew out of a request for this kind of impact evaluation by the directors of a key National Science Foundation program. This NSF unit is the College Science Improvement Program (COSIP) which dispenses millions of dollars each year with the goal of improving undergraduate science education.

The data used in these analyses were derived from the longitudinal research program of the American Council on Education (ACE) Office of Research.

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[1]This research was supported in part by National Science Foundation Grant #GR-89. Janice Peterson and Susan Sharp provided valuable assistance in this study. The manuscript was typed by Melvena Wimbs. James Kellett and Alice Alexander of the National Science Foundation provided extensive information about the College Science Improvement Program.

While the major focus of research in the past using this data bank has been on educational issues, several studies have been performed with these data evaluating the impact of specific projects. These have included analyses of other NSF programs (e.g., Astin, 1969) and studies of the effects of special programs for disadvantaged students (Astin, 1970).

An empirical evaluation of the COSIP logically requires two stages, each becoming in effect a separate study. In the impact research itself it is necessary to control for any initial differences which existed between schools receiving COSIP grants and other schools in the eligible population prior to the awarding of the funds. Identifying these initial differences constitutes Phase 1 and yields considerable information about the kinds of schools which receive COSIP grants. The subsequent analysis of the effects of an influx of COSIP funds upon the students will be Phase 2. This paper reports the results of Phase 1.

The College Science Improvement Program

The College Science Improvement Program was launched in 1966 and has as its stated goal ". . .to accelerate the development of the science capabilities of predominantly undergraduate institutions and to enhance their capacity for continuing self-renewal" (National Science Foundation, 1969, p. 90). Between the program's inception and the end of fiscal year 1969, COSIP made 105 grants representing a total amount of over $18,000,000 to such institutions.[2]

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[2]It should be emphasized that the focus of this study is only upon those schools which received major COSIP institutional grants. In fiscal year 1969, for the first time, NSF also awarded eight interinstitutional grants. These are smaller, special awards, typically given to a consortium consisting of a number of schools. Also excluded were interinstitutional grants awarded to consortia of two-year colleges; all of the schools considered in this research are four-year institutions.

The range of departments which receive funds from COSIP grants is wide and falls into the following NSF categories:

Biological Sciences
Chemistry
Computer Science
Earth Sciences
Engineering
Mathematics
Physics
Psychology
Social Sciences
Interdisciplinary
Multidisciplinary

Within any given department the use of the money may vary among the following categories:

Faculty research and scholarly activities
Local course and curriculum studies
Instructional equipment
Undergraduate student activities
Other activities

The ACE Longitudinal Research Program

As indicated above, the data presented in this research report are a direct product of the Cooperative Institutional Research Program (CIRP) being conducted by the Office of Research of the American Council on Education. Since this program was launched in 1966, over a million undergraduates have completed questionnaires. Work prior to the CIRP program included a prototype study carried out with students who entered college in 1961 and a pilot study of 1965 freshmen. Each fall since 1966, when the full-scale research program was launched, approximately a quarter of a million students from a wide range of colleges and universities have filled out questionnaires containing items about their previous academic experiences, educational and professional aspirations, attitudes, etc. In addition, follow-up questionnaires have been sent to subsamples of each entering cohort at periodic intervals.

This framework makes possible both descriptive profiles and longitudinal studies of undergraduate development. The former are based on a complex set of weighting procedures (Creager, 1968), which lead to national normative reports. These have been produced with respect to entering freshmen (e.g., Creager, Astin, Boruch, Bayer, and Drew, 1969) and at subsequent intervals in the college experience (Bayer, Drew, Boruch, Astin, and Creager, 1970) as well as with respect to specific subgroups of students (e.g., Drew, 1970a). Analytical studies have been conducted with respect to such topics as the dimensions of the college environment (Astin, 1968a) and undergraduates planning a career in medicine (e.g., Drew, 1970b). An accessing system has been established to make these data available to a wide range of social and educational researchers (Bayer, Astin, Boruch, and Creager, 1969); concurrently a series of steps have been taken which assure the confidentiality of the information provided by the research subjects (Astin and Boruch, 1970).

Definition of the Sample

Sample definition (and in fact definition of the eligible population) was an important and complex process. In essence it amounted to determining which schools in the ACE Data Bank were eligible institutions in terms of the COSIP definition and, of those, which had received COSIP grants.

The sample of institutions should remain identical from Phase 1 to Phase 2. The impact research (Phase 2) will trace the effect of COSIP grants on the aspirations and performances of the undergraduates. In light of the time periods involved the optimal cohort of students to be studied were those who had entered college in the fall of 1966 (before COSIP was launched).

The 1966 Data Bank included information from students at 307 institutions, data from 251 of which were used in computing the National Freshmen Norms for

that year (Astin, Panos and Creager, 1966). Table 1 contains information about the population, sample, and sample weights used in 1966 broken down by stratification cell or type of institution. Table 2 indicates the actual number of participants in each of several categories of institutions as well as the weighted population estimates within those categories.

The 1966 freshmen received a follow-up questionnaire during December of 1969, their senior year. For an institution to be relevant with respect to this impact research, it must have participated in the follow-up. Thus, the total from the 1966 freshmen sample was reduced to those schools which also were included in the follow-up; this group consisted of 186 institutions.

At this point we had only defined the sample of institutions with respect to the ACE Data Bank. The next task was determining that subset of the above institutions which was eligible to receive a COSIP grant.

The formal statement of institutional eligibility is given in a publication by the National Science Foundation about the College Science Improvement Program.

> Eligibility for participation in the College Science Improvement Program is extended to any science baccalaureate-granting institution in the United States or its territories which, during academic years 1961-62 to 1963-64, inclusive, granted not more than 10 Ph.D.'s in the sciences. Although the group of eligible institutions is not otherwise circumscribed, strong preference will be given, at least in the early years of the Program, to those institutions granting 100 or more baccalaureates in science in the 3-year period of 1963-64 to 1965-66, inclusive (or in any later period for which substantiating data are available). An eligible institution may not request support for any academic unit which is the subject of a proposal or a grant under the Foundation's Departmental Science Development Program (National Science Foundation, 1968, p. 4).

In fact the strong preference group referred to above has always been used as the pragmatic definition of eligibility. This, then, became the

basis for the definition of eligibility used in this research. However, some additional refinements were necessary.

Technically the 100 baccalaureates or more should have been given within the most recent 3-year period. NSF officials have determined this by looking at the cover sheets of proposals received and checking with the registrars of the institutions. As a reference list they used information obtained from the Office of Education concerning the period between 1963-64 and 1965-66. (It should be noted that one criterion used by NSF was that once a school was eligible, it remained eligible.) Our research used this list. However, since the information could be superceded by data from the institution in the NSF decision-making process, we made a special review of the eligibility of any school which had applied for a grant. There was no reasonable way to determine the few schools in the population who may also have been eligible, but were not on the basic list. Using these criteria we found that 94 of the ACE Data Bank institutions mentioned above had been eligible to receive COSIP grants. These are listed in Appendix A.

Similar considerations arose in the process of determining which schools received COSIP grants. As the dependent variables were measured in December of 1969, no school could be considered as having received a grant (for purposes of this study) which had not obtained funds prior to this time, i.e., no school could be considered to which the funds had not been sent by fiscal year 1970. Thus, if a school had been awarded a grant in fiscal year 1969, but the money was not to be given to the school until fiscal year 1971, this institution was not considered as having received a grant. Of the eligible institutions 29 had received COSIP grants and are indicated in the Appendix A list. While data from these schools are used in the analyses below, in accordance with the Council's confidentiality policies, information concerning

a specific college is not presented. Five schools had applied for grants but had their proposal denied.[3] These schools remained in the sample of 65 non-recipients.

Characteristics of Students and Institutions

Two general sets of variables were examined in the analyses below: one containing institution characteristics and the other containing student data as summarized from the fall 1966 Student Information Form.

The institution characteristics were taken from a file prepared for use in educational research (Creager and Sell, 1969) which contains extensive information about each college. Among the variables used in the analyses below are indicators of whether the school was public or private, male, female or coed, the enrollment, selectivity level, the percentage of Ph.D.s on the staff, the number of volumes in the library, the amount of student fees, the market value of the endowment, the total Federal support per student, etc. The total list of institution variables is presented in Appendix B.

The basic freshman questionnaire is a four page document containing a series of multiple choice items. A copy of the form used in the fall of 1966 is shown in Appendix C. The questionnaire was constructed so that the responses could be recognized by optical scanning equipment and written on a data tape for subsequent computer analysis. The responses to these questions were given by the freshmen after matriculation but before they experienced college,

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[3] In the population the ratio of NSF approvals to denials is approximately 1:1. The small number of denials which appeared in the ACE sample may reflect oversampling of selective schools by the Council. An alternative hypothesis is that colleges which provide poor grant proposals also tend to provide poor (i.e., unacceptable) data for the ACE research.

In addition to the Phase 2 impact study a special additional analysis is planned in which the entire population of grant approvals and denials is compared with respect to a limited number of characteristics. This kind of examination originally was planned with the data discussed above but had to be abandoned in light of the small number of denials among the sample institutions.

i.e., during their orientation period. For each institution a "score" for each variable was obtained which was an indication of the percentage of students who had selected that option. Thus, for example, there were four variables indicating the percentage of students in the school who had attended the following kinds of secondary schools: public, private (denominational), private (non-denominational) and others. In some cases it was necessary to collapse categories in the computer processing but the variables used essentially reflect the contents of the Student Information Form.

Data Analyses

The major analysis sought to isolate those factors -- both in terms of institution characteristics and student characteristics -- which were related to subsequent receipt of a COSIP grant. Initially this involved looking at zero-order differences as reflected in the correlation coefficient; following this a more complete analysis was carried out via multiple regression.

Institution Characteristics

As a first step all the variables listed in Appendix B were correlated with the dichotomous criterion variable -- receipt of a COSIP grant or not. The results presented in Table 3 include those variables which had significant correlations.[4] Institutions receiving COSIP grants are characterized by a high percentage of Ph.D.s on the faculty, large endowments and selective admissions standards. These schools tend to be private, nonsectarian, liberal arts colleges with relatively few commuters, part-time students, or female students. The comparatively low proportions of freshmen at these institutions

[4] A few redundant variables were omitted. Thus, only one measure of student selectivity is reported although three other equivalent scales were significantly related to the criterion.

may indicate that COSIP grants are not going to rapidly growing institutions. Alternatively, this could reflect low drop-out rates among grant recipients.

Multiple regression provided a more penetrating analysis. All the institution variables were presented as an independent variable pool using a stepwise regression algorithm, with the same dichotomous criterion variable. These results are summarized in Table 4, which contains all variables which contributed significantly to the prediction of the dependent variable. For each of these independent variables Table 4 indicates the zero-order correlation with the criterion as well as a measure of the importance of its contribution (the F value to remove it from the final equation).

Clearly NSF has been giving COSIP grants to schools with high academic ratings. The factors reflecting this in the regression equation, of course, are the measures of the percentage of Ph.D.s on the staff and of students awarded scholarships. However, while the zero order correlations show a high relationship between receipt of a grant and the size of the school's endowment, the grant recipients were schools which previously had received less money for research than other institutions. Finally, the presence of the "percent male" variable is not surprising in light of the fact that these funds tend to go to the physical sciences which are predominantly male fields.

Student Characteristics

The next step in the analyses sought to predict whether or not an institution would receive a COSIP grant on the basis of characteristics of the student body. This concern seemed particularly relevant for several reasons. First, recent research (Astin, 1968b) has demonstrated that the major differential effects of colleges appear to be less a function of institution facilities and wealth than of the characteristics of the entering students. The second reason was the importance of student measures as criteria in the

analyses planned for Phase 2. In this future work we shall want to be sure we have controlled for all student characteristics which differentiated COSIP grant recipients from the rest of the eligible sample.

As indicated above, the institution "score" for each student characteristic was the percentage of the freshmen who checked that item on the questionnaire. Thus each of the independent variables in the analysis below was a number between 0 and 100 percent.

As before, the first step involved examining the correlation coefficients between the student characteristics and the criterion of whether or not the school had received a COSIP grant. The results of this analysis are presented in Table 5. Several questionnaire items e.g., whether or not the student is a twin, whether he expects to marry while in college, etc., have been omitted as they were, at best, indirectly relevant to the present concerns. For each questionnaire item in Table 5 only those options which yielded significant correlations are presented.

The students at COSIP schools were likely to have attended nondenominational private secondary schools and to have maintained a superior academic record. In addition they achieved various other secondary school honors, particularly with respect to science. In fact, there are several indicators of a strong science orientation on the part of the students at these schools. In addition to past achievements, their future majors and careers as well as their objectives all reflect this orientation. Thus, the highest correlations among the major fields is with physical sciences and among the probable career occupations with research scientist. Students at these colleges have lofty educational aspirations and appear to be planning on high-level professional careers. Finally, the profile they present of their college is of a cohesive, progressive school with a considerable amount of academic competition and pressure.

Multiple regression was used to isolate those student characteristics uniquely associated with receipt of a COSIP grant by the college. All items from the Student Information Form (see Appendix C) were used as the independent variable pool. The results are presented in Table 6 which includes any variable which significantly predicted whether or not an institution received a grant. The image which emerges from study of Table 6 is of a relatively progressive college (athletics not emphasized and classes informal). The students tend to be Protestant and to have high educational aspirations, although the exact meaning of the emphasis on the law is unclear. The findings that these students were significantly less likely to have gone to the movies during the past year is difficult to interpret directly. It may simply reflect a tendency by these students to pursue serious extra-curricular activities.

Supplementary Analyses

The preceeding analyses completed the major work for Phase 1. However, it seemed valuable to examine the data further to see if there were special factors associated with receipt of a COSIP grant for work in a particular field or for a particular purpose. As indicated above, there were eleven categories of academic fields in which COSIP funds have been awarded. A given institution, of course, could receive funds to be distributed within several of these fields. In coding the data for analysis, we created a series of dichotomous variables indicating whether or not a school received COSIP funds in each of these categories. A similar coding scheme was followed with respect to the purposes for which the money was used (e.g., scientific equipment, etc.).

In the first set of supplementary analyses, each field became a separate dependent variable. The entire battery of institution variables listed in

Appendix B was used as a predictor pool. Table 7 summarizes the results from these analyses.

Equations were not calculated for several fields: computer science, engineering, social sciences, interdisciplinary. The base rate (i.e., the number of schools receiving a grant in each of these categories) was too low to satisfy fundamental statistical assumptions. Inclusion in this analysis required that at least nine schools had received grants in the category.

The findings are mixed and difficult to interpret. The prediction of receipt of a COSIP grant is strongest in the fields of chemistry, physics, and mathematics. As expected the general predictors revealed in the major analysis show their effect again here. The objective of these analyses was to detect new factors uniquely associated with receiving a grant in a particular field above and beyond these general predictors.

The earlier analyses indicated that no region of the country was significantly more likely than others to receive a COSIP grant. However, there appears to be a slight regional bias with respect to the awarding of grants in chemistry and those which are multidisciplinary.

The second set of supplementary analyses predicted the purposes for which COSIP funds were allocated. Separate regression equations were computed in which each of the goals listed earlier in this paper was predicted on the basis of the institution characteristics in Appendix B. Here, the base rate in each of the five categories was sufficient to allow calculation of the equation. The results are summarized in Table 8.

Apparently, institutional policy with respect to automobiles on campus is a good indicator of these phenomena. The finding that schools with unusual calendar plans, as opposed to the usual semester or trimester schedule, are

more likely to receive grants for undergraduate student projects is understandable. These colleges probably have a progressive approach and are more flexible.

Summary and Conclusions

This research drew upon the ACE data bank in an analysis of the characteristics of institutions which were the recipients of grants from the NSF College Science Improvement Program. The sample consisted of 94 colleges which were eligible to receive COSIP grants; of these 29 had been awarded grants. Multiple regression equations were computed in which both characteristics of the institutions and of the student body were used to predict subsequent receipt of a COSIP grant by the school. Supplementary analyses were carried out exploring the predictors of a grant within a particular field or for a particular purpose.

The ability to predict the dependent variable (as reflected in the multiple R) was respectable, but far from perfect. That is, even with a large battery of predictor variables, one cannot entirely account for the decisions made. In part, this may be a reflection of a rather vague NSF definition of the criteria upon which the grants were awarded. The evaluation standards set forth in one of their publications are as follows:

> "Primary consideration will be given to the degree of academic improvement to be expected if the proposed project is supported. Each individual activity for which support is requested (as well as the improvement plan as a whole) will be examined in the light of the question: How and to what extent will it improve the quality of science education received by the students? Support in order of merit to the extent of available funding is the rule, except that, in cases of substantially equal merit, consideration will be given to such other factors as disciplinary and geographical balances." (National Science Foundation, 1968, p. 8)

Analyses of the data led to the following profile of a grant recipient school. Selectivity, faculty quality and affluence, correlated with each other in higher education, appear also to be related to receiving a COSIP grant. Of all institution characteristics the percentage of Ph.D.s on the staff was most significantly related to the criterion. This is intriguing inasmuch as the COSIP literature stresses that institutions may want to upgrade academic science through improvement of teaching. This finding may also be related to evaluation procedures which include examining the competence of the faculty members involved.

In the case of many COSIP grants the institution is expected to make a contribution itself. This may be one factor which is related to the affluence of grant recipients. Also it may well be that only those colleges with heavy endowments can afford the luxury of maintaining personnel whose task it is to aid in writing "creative proposals." Finally, while grant recipients tend to be more affluent institutions than nonrecipients, they are significantly lower in the category of sponsored research.

In addition to these characteristics, grant recipients were likely to be nonsectarian liberal arts colleges which were relatively progressive (informal classes, athletics not emphasized). The students at these schools tended to be male and Protestant with superior academic records. They had high professional aspirations and a strong orientation toward science.

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TABLES

Table 1

Final 1966 ACE Sample and Weights Used in Computing National Norms

Stratification Cell For Sampling	Number of Institutions Participants: Population	Total	Used In Norms	Cell Weights* Applied To Data From: Men	Women
2-Year Public Colleges					
Enrollment:					
1. less than 500	111	6	3	25.667	23.477
2. 500-999	99	3	3	36.844	32.476
3. 1000-2499	108	6	5	22.143	21.778
4. 2500-4999	40	4	4	8.773	9.305
5. 5000 or more	35	5	4	7.347	6.993
2-Year Private Colleges					
Enrollment:					
6,7. less than 1000	173	6	5	45.436	25.136
8,9. 1000 or more	27	5	5	4.567	6.260
4-year Colleges					
Expenditures:**					
10. Unknown	254	9	9	3.030	3.219
11. less than $750	109	23	21	7.468	7.392
12. $750-999	234	20	15	16.717	15.367
13. $1000-1249	236	23	19	13.676	14.948
14. $1250-1499	160	26	23	6.210	7.978
15. $1500-1749	78	19	19	3.915	5.483
16. $1750-1999	51	24	21	3.990	2.583
17. $2000-2249	21	9	5	8.916	5.850
18. $2250-2499	20	10	8	8.916	2.308
19. $2500 or more	39	21	18	2.033	2.405
Universities					
Expenditures:**					
20. Unknown	14	3	2	8.099	7.427
21. less than $750	10	4	4	2.141	2.407
22. $750-999	7	4	3	1.715	2.185
23. $1000-1249	18	6	5	2.651	3.477
24. $1250-1499	24	11	9	2.643	2.619
25. $1500-1749	11	5	5	2.872	2.522
26. $1750-1999	24	15	10	2.373	2.150
27. $2000-2249	20	17	12	1.688	1.694
28. $2250-2499	13	5	4	2.453	3.522
29. $2500 or more	32	18	10	3.341	3.554
Totals:	1,968	307	251		

* Ratio between the number of 1965 first-time students enrolled in all colleges and the number of 1965 first-time students enrolled at colleges in the ACE sample.

**Per student expenditures for educational and general purposes.

Table 2

Institutions and Students Used in Computing the
1966 Weighted National Norms

	Number Used In Norms	Number of 1966 Entering Freshmen*		
		Actual Participants	Weighted Totals	
			Number	% Men
All Institutions	251	206,865	1,163,123	54.3
All Two-Year Colleges	29	22,901	290,072	58.2
All Four-Year Colleges	158	61,433	527,320	49.5
All Universities	64	122,531	345,732	58.2

* First-time, full-time.

Table 3

Correlations Between Receipt of a COSIP Grant and Institution Characteristics
(N = 94 Institutions)

	Correlation Coefficient*
% Ph.D. on Staff	.387
Endowment (market) Per Student	.372
Total Revenues Per Student (Affluence)	.292
% Full-Time of Total Enrollment	.285
% of Full-Time Enrollment Awarded Scholarships	.273
Roman Catholic College	-.256
Selectivity Level	.234
Aid Per Student	.232
Private-Nonsectarian College	.219
Residence Hall Capacity (% of Full-Time Enrollment)	.205
Autos Allowed	-.202
Liberal Arts College	.194
% Full-Time Male of Total Enrollment	.192
% Freshmen of Full-Time Enrollment	-.189
% Resident of Total Enrollment	.182
Fees Per Student	.181
Academic Science Per Student 1963	.175

*$\underline{r}_{.05} = .17$; $\underline{r}_{.01} = .24$.

Table 4

Prediction of Receipt of a COSIP Grant on the Basis of Institution Characteristics (N = 94 Institutions)

Multiple R = .549	Sign	F Ratio In The Final Equation	Zero-Order Correlation
% Ph.D. On Staff	+	22.027	.387
Sponsered Research	-	7.868	-.119
% Full-Time Male of Total Enrollment	+	6.359	.192
% of Full-Time Enrollment Awarded Scholarships	+	6.307	.273

Table 5

Correlations Between Receipt of a COSIP Grant and Selected Student Characteristics (N = 94 Institutions)

	Correlation Coefficient*
Type of Secondary School	
Private (Denominational)	-.262
Private (Nondemoninational)	.256
Average Grade in High School	
A or A+	.247
A-	.281
B-	-.234
C+	-.240
Secondary School Achievements	
Elected President of a Student Organization	.295
Had Original Writing Published	.273
Participated in NSF Summer Program	.303
Placed in a State/Regional Science Contest	.304
Was a Member of a Scholastic Honor Society	.297
Highest Academic Degree Planned	
Bachelors Degree (B.A., B.S.)	-.336
Ph.D. or ED.D	.382
M.D., D.D.S., or D.V.M.	.217
LL.B. or J.D.	.278
Probable Major Field of Study	
Education	-.197
History, Political Science	.237
Mathematics or Statistics	.194
Physical Sciences	.274
Pre-Professional	.230
Probable Career Occupation	
College Professor	.294
Doctor (M.D.)	.257
Educator (Secondary)	-.234
Elementary Teacher	-.243
Health Professional (Non-M.D.)	-.208
Lawyer	.295
Research Scientist	.306
Undecided	.197
Objectives Considered To Be Essential or Very Important	
Making a Theoretical Contribution to Science	.186
Writing Original Works	.230
Never Being Obligated to People	-.176

Table 5

(Continued)

	Correlation Coefficient*
Major Sources of Financial Support During Freshman Year	
Employment During Summer	-.195
Scholarship	.221
G.I. Bill	-.180
Personal Savings	-.231
Parental Aid	.255
Federal Government	-.259
Commercial Loan	-.221
Very Descriptive of the Atmosphere of the College	
Intellectual	.310
Practical-Minded	-.318
Realistic	-.161
Liberal	.202
Applies to this College (Yes)	
Students Under Great Pressure to get High Grades	.197
Students' Academic Calibre High	.221
There is Keen Competition for Grades	.197
I Felt Lost When I First Came to this Campus	-.177
Classes Are Usually Informal	.395

*$r_{.05} = .17$; $r_{.01} = .24$.

Table 6

Prediction of Receipt of a COSIP Grant on the Basis
of Student Characteristics
(N = 94 Institutions)

Multiple R = .585	Sign	F Ratio In The Final Equation	Zero-Order Correlation
% of Students Indicating That:			
Classes Are Usually Informal	+	14.714	.395
They Are Protestant	+	10.605	.306
Atheletics Are Over-Emphasized	-	6.422	-.150
They Aspire to an LL. B. or J.D. Degree	+	6.108	.278
They Went to the Movies Frequently	-	5.144	-.074

Table 7

Prediction of Receipt of a COSIP Grant in a Particular Field on the Basis of Institution Characteristics (N = 94 Institutions)

	Sign	F Ratio In The Final Equation	Zero-Order Correlation
Biological Sciences (R = .379)			
Endowment (market) Per Student	+	15.402	.379
Chemistry (R = .578)			
Research Funds Per Student	-	10.332	-.130
% of Full-Time Enrollment Awarded Scholarships	+	10.194	.310
Endowment (market) Per Student	+	9.850	.392
Academic Science Per Student 1963	+	6.351	.104
College in Southeast Region	+	5.916	.226
Earth Sciences (R = .435)			
Endowment (book) Per Student	+	9.150	.278
Unusual or Unknown Calander Plans	+	5.377	.286
Research Funds Per Student	-	5.127	-.191
Mathematics (R = .522)			
Endowment (market) Per Student	+	26.301	.431
Research Funds Per Student	-	6.494	-.169
% Baccalaureates on Staff	-	4.674	-.171
Physics (R = .564)			
Endowment (market) Per Student	+	34.781	.474
Fees Per Student	-	9.672	-.009
% Full-Time of Total Enrollment	+	4.755	.224
Psychology (R = .382)			
R & D Plant Per Student 1966	+	8.748	.237
Research Funds Per Student	-	6.275	-.153
% of Full-Time Enrollment Awarded Scholarships	+	4.731	.169
Multidisciplinary (R = .332)			
Average Freshmen SAT (Verbal + Mathematics) Score	+	10.879	.254
College in Southeast Region	+	4.627	.059

Table 8

Prediction of Receipt of a COSIP Grant for a Particular Purpose
on the Basis of Institution Characteristics
(N = 94 Institutions)

	Sign	F Ratio In The Final Equation	Zero-Order Correlation
Faculty Research & Scholarly Activities (R = .362)			
Endowment (market) Per Student	+	7.343	.277
Automobiles Allowed	-	5.687	-.246
Local Course and Curriculum Studies (R = .534)			
Endowment (market) Per Student	+	16.118	.366
Automobiles Allowed	-	10.122	-.290
% Baccalaureates on Staff	-	4.883	-.183
Number of Periodicals in the Library	+	4.231	.186
Instructional Scientific Equipment (R = .444)			
Endowment (market) Per Student	+	6.367	.310
Automobiles Allowed	-	5.080	-.256
% of Full-Time Enrollment Awarded Scholarships	+	4.797	.306
Undergraduate Student Activities (R = .388)			
Endowment (book) Per Student	+	8.341	.308
Unusual or Unknown Calendar Plans	+	5.922	.269
Other Activities (R = .318)			
Endowment (market) Per Student	+	10.328	.318

APPENDIX A

The Sample of COSIP-Eligible Institutions

The Sample of COSIP-Eligible Institutions

Adrian College
Alabama A & M College
Allegheny College
Amherst College *
Aquinas College
Augsburg College
Austin College
Bates College
Beloit College *
Berea College *
Bowdoin College
Bradley University
California State College - Fullerton
Carleton College *
Carroll College
Chatham College
Colby College
College of Mount Saint Vincent
College of New Rochelle
Connecticut College
Dartmouth College
Davis & Elkins College *
Delaware Valley College of Science and Agriculture
Depauw University
Dickinson College *
Earlham College *
Emory & Henry College *
Fairmount State College
Fisk University *
Franklin & Marshall College *
General Motors Institute
Gettysburg College *
Grinnell College *
Guilford College
Hamline University
Harding College - Main Campus
Harvey Mudd College *
Hollins College *
Johnson C. Smith University
Lake Forest College
Lebanon Valley College
Louisiana Polytechnic Institute *
Loyola University - Los Angeles - Main Campus
MacMurray College *
Marietta College
Mary Baldwin College
Miami University - Oxford Campus *
Middlebury College *
Mills College
Monmouth College *
Montana State University
Morehouse College *
Morris Harvey College
Mount Holyoke College *

Nazareth College of Rochester
Newark College of Engineering
Newton College of the Sacred Heart
Northland College
Oberlin College *
Occidental College *
Parsons College
Pratt Institute
Rollins College - Main Campus (Fla.)
Saint John Fisher College Inc. (N.Y.)
Saint Joseph College - Main Campus (Ind.)
Saint Norbert College (Wisc.)
Springfield College (Mass.)
Spring Hill College
SUNY - Cortland
SUNY - Osewego
SUNY - Potsdam
SUNY - Stony Brook
Swarthmore College
Sweet Briar College
Talladega College (Ala.)
Texas Christian University
Trinity College (D.C.)
University of Detroit
University of the Redlands *
University of South Carolina - Main Campus
University of Vermont & State Agriculture College*
Valparaiso University
Vassar College
Virginia Military Institute
Virginia Union University
Washington & Lee University *
Wellesley College
Wesleyan College
Western Illinois University
Wheaton College *
Whitman College
Williams College *
Wittenberg University *
Wofford College

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*COSIP Grant Recipients

APPENDIX B

Institution Characteristics Used in the Analyses

33/34

American Council on Education
One Dupont Circle
Washington, D.C. 20036

Office of Research
TAPE LAYOUT SHEET

NAME OF STUDY Research Institutional File DATE November 1, 1969

REEL NO. A189* LABEL None NO. OF CASES 2,319

TAPE CHARACTERISTICS Unblocked, 556 bpi. BCD Tape (564 Characters)

DATA Selected Institutional Data in Form for Research Use

1-4	1968 ACE#	51	4-year college 2/1
		52	2-year college 2/1
5-9	1967 ACE#	53	Male 2/1
		54	Female 2/1
		55	Coed. 2/1
10-14	1966 ACE#	56	Northeast
		57	Midwest 2/1
		58	Southeast
		59	West & Southwest
15-16	USOE State Code	60	Liberal Arts
		61	Teachers
17-20	USOE Institution # Within State	62	Independent Technical
		63	Religious
		64	Independent Professional 2/1
		65	Jr. College
		66	2-year Technical
		67	2-year Semiprofessional
		68	Arts & Music School
21-22	Stratification Cell	69	Public Control
		70	Private-Nonsectarian 2/1
		71	Roman Catholic
		72	Other Sectarian
23-45	Name of Institution	73	1966 Enrollment Code
		74-79	Generated Total Enrollment 1967
		80	1967 Enrollment Code
		81-86	Total Full-Time Enrollment, 1967
		87-92	Total Resident Enrollment
		93-94	% Full-Time of Total Enrollment 99 = 99-100
		95-96	% Male of Total Enrollment 99 = 99-100
		97-98	% Resident of Total Enrollment 99 = 99-100
46-47	USOE Control Code	99-100	% First-Time, Full-Time of Total Enrollment 99 = 99-100
48	Race (Negro = 2, White = 1)		
49-50	Control (private = 2, public = 1) University = 2, 1 = otherwise		

* Stratification cell means supplied in tape A189 for missing data in fields indicated. Tape A151 is the same except blanks for missing data.

American Council on Education
One Dupont Circle
Washington, D.C. 20036

Office of Research

TAPE LAYOUT SHEET

REEL NO. A189

LABEL _____

101 102	% Freshmen of Total Enrollment	151 152	Percent Associates on Staff	**
103 104	% Full-Time Male of Total Enrollment	153 154 155 156	Annual Tuition (Out-of-State)	**
105 106	% Male of Full-Time Enrollment			
107 108	% Resident of Full-Time Enrollment	157 158	% of Full-Time Enrollment Awarded Scholarships	**
109 110	% Freshmen of Full-Time Enrollment	159 160	% of Full-Time Enrollment Given Loans	**
111 112	% Full-Time of Resident Enrollment	161 162	% of Full-Time Enrollment Given Jobs	**
113 114	% Male of Resident Enrollment	163 164	% of Full-Time Enrollment Given Aid	**
115 116	% Undergraduate of Resident Enrollment	165 166	% Foreign Students of Full-Time Enrollment	**
117 118	% Post-baccalaureates of Resident Enrollment	167 168	% of Full-Time Enrollment - Residence Hall Capacity	**
119	Selectivity Level U = 0	169	Autos Allowed 2/1	
120 121	ACT Score (1-35) U = 19	170 171 172 173 174	No. Volumes in Library ÷ 100	**
122 123 124	NMSQT Composite (1-165) U = 88			
125 126 127 128	SAT V + M (400-1600) U = 850	175 176 177 178 179	No. of Periodicals in Library	**
129 130 131 132	Semester Trimester Quarter Other or unknown Calendar Plans 2/1	180 181 182 183 184 185	Student Fees ÷ 100	**
133 134 135	SAT known to be required CEEB known to be required ACT known to be required 2/1			
136 137	B average or better in high school Chapel attendance known to be required	186 187		
138 139 140 141 142	Generated Staff Total (sum of 5 staff degree fields)	188 189 190 191	Government Appropriations ÷ 100	**
143 144	Percent Ph.D. on Staff	192 193 194 195 196 197	Sponsored Research ÷ 1000	**
145 146	Percent Master's Degree on Staff			
147 148	Percent Baccalaureates on Staff			
149 150	Percent Professional Degree on Staff	198 199 200	Student Aid ÷ 1000	**

** Stratification cell means supplied for missing data.

American Council on Education
One Dupont Circle
Washington, D.C. 20036

Office of Research

TAPE LAYOUT SHEET

REEL NO. A189

LABEL _____

201	Student aid (continued)	
202 203 204 205 206 207	Total Revenues ÷ 1000	
208 209 210 211 212 213	Book Value of Endowment ÷ 1000	
214 215 216 217 218 219 220	Market Value of Endowment ÷ 1000	
221 222 223 224 225 226	Book Value of Buildings and Equipment ÷ 1000	
227 228 229 230	Fees per Student	
231 232 233 234	Appropriations per Student	
235 236 237 238	Research Funds per Student	
239 240 241 242	Aid per Student	
243 244 245 246	(Total Revenues per Student) ÷ 10 (affluence)	
247 248 249 250	Endowment (Book) per Student	
251 252 253 254	Endowment (Market) per Student	**
255 256 257 258	Book Value of Physical Plant per Student	**
259	Affluence Code	**
260 261 262 263 264	Total Federal Support per Student 1966	
265 266 267 268 269	Academic Science Support per Student 1966	
270 271 272 273 274	R&D per Student 1966	
275 276 277 278 279	R&D Plant per Student 1966	
280 281 282 283 284	Total Federal Support per Student	
285 286 287 288 289	Academic Science per Student 1963	
290 291 292 293 294	R&D per Student 1963	
295 296 297 298 299	R&D Plant per Student 1963	
300	Beginning of Degree Fields; Group 01	

APPENDIX C

1966 Student Information Form

39/40

513216

YOUR NAME(please print) _____
First Middle or Maiden Last

HOME STREET ADDRESS _____

_____
CITY STATE ZIP CODE (if known)

Note: The information in this report is being collected through the American Council on Education as part of a study of this year's entering class. Please complete all items. Your name and address has been requested in order to facilitate mail follow-up studies. Your responses will be used only in group summaries for research purposes, and will not be identified with you individually.

Social Security Number
(if known)

Date of Birth _____ _____ _____
Month Day Year

If you recently took any of the national achievement tests and happen to remember your score, fill in the appropriate information:

	Score		Score
SAT Verbal		ACT Composite	
SAT Math		NMSC Selection Score	

DIRECTIONS: Your responses will be read by an automatic scanning device. Your careful observance of these few simple rules will be most appreciated.

Use only black lead pencil (No. 2½ or softer).
Make heavy black marks that fill the circle.
Erase cleanly any answer you wish to change.
Make no stray markings of any kind.

	Yes	No
Example: Will marks made with ball pen or fountain pen be properly read?	○	●

1. Your Sex: Male ○ Female ○

2. From what kind of secondary school did you graduate? (Mark one)
- Public ○
- Private (denominational) ○
- Private (nondenominational) ○
- Other ○

3. What was your average grade in secondary school? (Mark one)

A or A+ ○	B– ○
A– ○	C+ ○
B+ ○	C ○
B ○	D ○

4. What is the highest academic degree that you intend to obtain? (Mark one)
- None ○
- Associate (or equivalent) ○
- Bachelor's degree (B.A., B.S., etc.) ○
- Master's degree (M.A., M.S., etc.) ○
- Ph.D. or Ed.D ○
- M.D., D.D.S., or D.V.M. ○
- LL.B. or J.D ○
- B.D. ○
- Other ○

5. The following questions deal with accomplishments that might possibly apply to your high school years. Do not be discouraged by this list; it covers many areas of interest and few students will be able to say "yes" to many items.
(Mark all that apply)
- Was elected president of one or more student organizations (recognized by the school) ○
- Received a high rating (Good, Excellent) in a state or regional music contest ○
- Participated in a state or regional speech or debate contest ○
- Had a major part in a play ○
- Won a varsity letter (sports) ○
- Won a prize or award in an art competition ○
- Edited the school paper, yearbook, or literary magazine ○
- Had poems, stories, essays, or articles published ○
- Participated in a National Science Foundation summer program ○
- Placed (first, second, or third) in a state or regional science contest ○
- Was a member of a scholastic honor society ○
- Won a Certificate of Merit or Letter of Commendation in the National Merit Program ○

6. Do you have any concern about your ability to finance your college education? (Mark one)

- None (I am confident that I will have sufficient funds) ○
- Some concern (but I will probably have enough funds) ○
- Major concern (not sure I will be able to complete college) ○

7. Through what source do you intend to finance the first year of your undergraduate education? (Mark one for each item)

	Major Source	Minor Source	Not a Source
Employment during college	○	○	○
Employment during summer	○	○	○
Scholarship	○	○	○
G. I. Bill	○	○	○
Personal savings	○	○	○
Tuition deferment loan from college	○	○	○
Parental aid	○	○	○
Federal government	○	○	○
Commercial loan	○	○	○

8. What is your racial background? (Mark one)

- Caucasian ○
- Negro ○
- American Indian ○
- Oriental ○
- Other ○

9. What is the highest level of formal education obtained by your parents? (Mark one in each column)

	Father	Mother
Grammar school or less	○	○
Some high school	○	○
High school graduate	○	○
Some college	○	○
College degree	○	○
Postgraduate degree	○	○

10. What is your best estimate of the total income last year of your parental family (not your own family if you are married)? Consider annual income from all sources before taxes.

- Less than $4,000 ○
- $4,000–$5,999 ○
- $6,000–$7,999 ○
- $8,000–$9,999 ○
- $10,000–$14,999 ○
- $15,000–$19,999 ○
- $20,000–$24,999 ○
- $25,000–$29,999 ○
- $30,000 or more ○

11. Mark one in each column below:

	Religion in Which You Were Reared	Your Present Religious Preference
Protestant	○	○
Roman Catholic	○	○
Jewish	○	○
Other	○	○
None	○	○

12. In deciding where to go to college, through what source did this college first come to your attention? (Mark one)

- Relative ○
- Friend ○
- High school counselor or teacher ○
- Professional counseling or college placement service ○
- This college or a representative from this college ○
- Other source ○
- I cannot recall ○

13. To what extent do you think each of the following describes the psychological climate or atmosphere at this college? (Mark one answer for each item)

	Very Descriptive	In Between	Not at all Descriptive
Intellectual	○	○	○
Snobbish	○	○	○
Social	○	○	○
Victorian	○	○	○
Practical-minded	○	○	○
Warm	○	○	○
Realistic	○	○	○
Liberal	○	○	○

14. Answer each of the following as you think it applies to this college:

	Yes	No
The students are under a great deal of pressure to get high grades	○	○
The student body is apathetic and has little "school spirit"	○	○
Most of the students are of a very high calibre academically	○	○
There is a keen competition among most of the students for high grades	○	○
Freshmen have to take orders from upperclassmen for a period of time	○	○
There isn't much to do except to go to class and study	○	○
I felt "lost" when I first came to the campus	○	○
Being in this college builds poise and maturity	○	○
Athletics are overemphasized	○	○
The classes are usually run in a very informal manner	○	○
Most students are more like "numbers in a book"	○	○

15. Are you:

- An only child (Mark and skip to number 20) ○
- The first-born (but not an only child) ○
- The second-born ○
- The third-born ○
- Fourth (or later) born ○

16. How many brothers and sisters now living do you have? (Mark one)

- None (Mark and skip to number 20) ○

1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 or more ○

17. Mark one circle for each of your brothers and sisters between the ages of 13 and 23

	13	14	15	16	17	18	19	20	21	22	23
Brothers	○	○	○	○	○	○	○	○	○	○	○
Sisters	○	○	○	○	○	○	○	○	○	○	○

18. Are you a twin? (Mark one)

- No, (Mark and skip to number 20) ○
- Yes, identical ○
- Yes, fraternal same sex ○
- Yes, fraternal opposite sex ○

19. Is your twin attending college?

- No ○
- Yes, the same college ○
- Yes, a different college ○

20. Mark one in each column:

	Your current home state	Your birthplace	Your father's birthplace	Your mother's birthplace
Alabama	○	○	○	○
Alaska	○	○	○	○
Arizona	○	○	○	○
Arkansas	○	○	○	○
California	○	○	○	○
Colorado	○	○	○	○
Connecticut	○	○	○	○
Delaware	○	○	○	○
D. C.	○	○	○	○
Florida	○	○	○	○
Georgia	○	○	○	○
Hawaii	○	○	○	○
Idaho	○	○	○	○
Illinois	○	○	○	○
Indiana	○	○	○	○
Iowa	○	○	○	○
Kansas	○	○	○	○
Kentucky	○	○	○	○
Louisiana	○	○	○	○
Maine	○	○	○	○
Maryland	○	○	○	○
Massachusetts	○	○	○	○
Michigan	○	○	○	○
Minnesota	○	○	○	○
Mississippi	○	○	○	○
Missouri	○	○	○	○
Montana	○	○	○	○
Nebraska	○	○	○	○
Nevada	○	○	○	○
New Hampshire	○	○	○	○
New Jersey	○	○	○	○
New Mexico	○	○	○	○
New York	○	○	○	○
North Carolina	○	○	○	○
North Dakota	○	○	○	○
Ohio	○	○	○	○
Oklahoma	○	○	○	○
Oregon	○	○	○	○
Pennsylvania	○	○	○	○
Rhode Island	○	○	○	○
South Carolina	○	○	○	○
South Dakota	○	○	○	○
Tennessee	○	○	○	○
Texas	○	○	○	○
Utah	○	○	○	○
Vermont	○	○	○	○
Virginia	○	○	○	○
Washington	○	○	○	○
West Virginia	○	○	○	○
Wisconsin	○	○	○	○
Wyoming	○	○	○	○
Latin America	○	○	○	○
Europe	○	○	○	○
Africa	○	○	○	○
Asia	○	○	○	○
Other	○	○	○	○

21. Below is a list of 66 different undergraduate major fields grouped into general categories. Mark only three of the 66 fields as follows:

① First choice (your probable major field of study).
② Second choice.
Ⓛ The field of study which is least appealing to you.

Arts and Humanities

Architecture	①	②	Ⓛ
English (literature)	①	②	Ⓛ
Fine arts	①	②	Ⓛ
History	①	②	Ⓛ
Journalism (writing)	①	②	Ⓛ
Language (modern)	①	②	Ⓛ
Language (other)	①	②	Ⓛ
Music	①	②	Ⓛ
Philosophy	①	②	Ⓛ
Speech and drama	①	②	Ⓛ
Theology	①	②	Ⓛ
Other	①	②	Ⓛ

Biological Science

Biology (general)	①	②	Ⓛ
Biochemistry	①	②	Ⓛ
Biophysics	①	②	Ⓛ
Botany	①	②	Ⓛ
Zoology	①	②	Ⓛ
Other	①	②	Ⓛ

Business

Accounting	①	②	Ⓛ
Business admin.	①	②	Ⓛ
Electronic data processing	①	②	Ⓛ
Secretarial studies	①	②	Ⓛ
Other	①	②	Ⓛ

Engineering

Aeronautical	①	②	Ⓛ
Civil	①	②	Ⓛ
Chemical	①	②	Ⓛ
Electrical	①	②	Ⓛ
Industrial	①	②	Ⓛ
Mechanical	①	②	Ⓛ
Other	①	②	Ⓛ

Physical Science

Chemistry	①	②	Ⓛ
Earth science	①	②	Ⓛ
Mathematics	①	②	Ⓛ
Physics	①	②	Ⓛ
Statistics	①	②	Ⓛ
Other	①	②	Ⓛ

Professional

Health Technology (medical, dental, laboratory)	①	②	Ⓛ
Nursing	①	②	Ⓛ
Pharmacy	①	②	Ⓛ
Predentistry	①	②	Ⓛ
Prelaw	①	②	Ⓛ
Premedical	①	②	Ⓛ
Preveterinary	①	②	Ⓛ
Therapy (occupat., physical, speech)	①	②	Ⓛ
Other	①	②	Ⓛ

Social Science

Anthropology	①	②	Ⓛ
Economics	①	②	Ⓛ
Education	①	②	Ⓛ
History	①	②	Ⓛ
Political science (government, int. relations)	①	②	Ⓛ
Psychology	①	②	Ⓛ
Social work	①	②	Ⓛ
Sociology	①	②	Ⓛ
Other	①	②	Ⓛ

Other Fields

Agriculture	①	②	Ⓛ
Communications (radio, T. V., etc.)	①	②	Ⓛ
Electronics (technology)	①	②	Ⓛ
Forestry	①	②	Ⓛ
Home economics	①	②	Ⓛ
Industrial arts	①	②	Ⓛ
Library science	①	②	Ⓛ
Military science	①	②	Ⓛ
Physical education and recreation	①	②	Ⓛ
Other (technical)	①	②	Ⓛ
Other (nontechnical)	①	②	Ⓛ
Undecided	①	②	Ⓛ

Please be sure that only three circles have been marked in the above list.

22. Probable Career Occupation

Note: Make only three responses, one in each column
① First Choice
② Second Choice
Ⓛ Least Appealing

Accountant or actuary	①	②	Ⓛ
Actor or entertainer	①	②	Ⓛ
Architect	①	②	Ⓛ
Artist	①	②	Ⓛ
Business (clerical)	①	②	Ⓛ
Business executive (management, administrator)	①	②	Ⓛ
Business owner or proprietor	①	②	Ⓛ
Business salesman or buyer	①	②	Ⓛ
Clergyman (minister, priest)	①	②	Ⓛ
Clergy (other religious)	①	②	Ⓛ
Clinical psychologist	①	②	Ⓛ
College teacher	①	②	Ⓛ
Computer programmer	①	②	Ⓛ
Conservationist or forester	①	②	Ⓛ
Dentist (including orthodontist)	①	②	Ⓛ
Dietitian or home economist	①	②	Ⓛ
Engineer	①	②	Ⓛ
Farmer or rancher	①	②	Ⓛ
Foreign service worker (including diplomat)	①	②	Ⓛ
Housewife	①	②	Ⓛ
Interior decorator (including designer)	①	②	Ⓛ
Interpretor (translator)	①	②	Ⓛ
Lab technician or hygienist	①	②	Ⓛ
Law enforcement officer	①	②	Ⓛ
Lawyer (attorney)	①	②	Ⓛ
Military service (career)	①	②	Ⓛ
Musician (performer, composer)	①	②	Ⓛ
Nurse	①	②	Ⓛ
Optometrist	①	②	Ⓛ
Pharmacist	①	②	Ⓛ
Physician	①	②	Ⓛ
School counselor	①	②	Ⓛ
School principal or superintendant	①	②	Ⓛ
Scientific researcher	①	②	Ⓛ
Social worker	①	②	Ⓛ
Statistician	①	②	Ⓛ
Therapist (physical, occupational, speech)	①	②	Ⓛ
Teacher (elementary)	①	②	Ⓛ
Teacher (secondary)	①	②	Ⓛ
Veterinarian	①	②	Ⓛ
Writer or journalist	①	②	Ⓛ
Skilled trades	①	②	Ⓛ
Other	①	②	Ⓛ
Undecided	①	②	Ⓛ

23. Below is a general list of things that students sometimes do. Indicate which of these things you did during the past year in school. If you engaged in an activity frequently, Mark "f." If you engaged in an activity one or more times, but not frequently, Mark "o"(occasionally). Mark "n"(not at all) if you have not performed the activity during the past year.
(Mark one for each item)

	Frequently	Occasionally	Not at all
Voted in a student election	F	O	N
Came late to class	F	O	N
Listened to New Orlean's (Dixieland) jazz	F	O	N
Gambled with cards or dice	F	O	N
Played a musical instrument	F	O	N
Took a nap or rest during the day	F	O	N
Drove a car	F	O	N
Stayed up all night	F	O	N
Studied in the library	F	O	N
Attended a ballet performance	F	O	N
Participated on the speech or debate team	F	O	N
Acted in plays	F	O	N
Sang in a choir or glee club	F	O	N
Argued with other students	F	O	N
Called a teacher by his or her first name	F	O	N
Wrote an article for the school paper or literary magazine	F	O	N
Had a blind date	F	O	N
Wrote a short story or poem (not for a class)	F	O	N
Played in a school band	F	O	N
Played in a school orchestra	F	O	N
Smoked cigarettes	F	O	N
Attended Sunday school	F	O	N
Checked out a book or journal from the school library	F	O	N
Went to the movies	F	O	N
Discussed how to make money with other students	F	O	N
Said grace before meals	F	O	N
Prayed (not including grace before meals)	F	O	N
Listened to folk music	F	O	N
Attended a public recital or concert	F	O	N
Made wisecracks in class	F	O	N
Arranged a date for another student	F	O	N
Went to an over-night or week-end party	F	O	N
Took weight-reducing or dietary formula	F	O	N
Drank beer	F	O	N
Overslept and missed a class or appointment	F	O	N
Typed a homework assignment	F	O	N
Participated in an informal group sing	F	O	N
Drank wine	F	O	N
Cribbed on an examination	F	O	N
Turned in a paper or theme late	F	O	N
Tried on clothes in a store without buying anything	F	O	N
Asked questions in class	F	O	N
Attended church	F	O	N
Participated in organized demonstrations	F	O	N

24. Indicate the importance to you personally of each of the following:
(Mark one for each item)

	Essential	Very Important	Somewhat Important	Not Important
Becoming accomplished in one of the performing arts (acting, dancing, etc.)	E	V	S	N
Becoming an authority on a special subject in my subject field	E	V	S	N
Obtaining recognition from my colleagues for contributions in my special field	E	V	S	N
Becoming an accomplished musician (performer or composer)	E	V	S	N
Becoming an expert in finance and commerce	E	V	S	N
Having administrative responsibility for the work of others	E	V	S	N
Being very well-off financially	E	V	S	N
Helping others who are in difficulty	E	V	S	N
Participating in an organization like the Peace Corps or Vista	E	V	S	N
Becoming an outstanding athlete	E	V	S	N
Becoming a community leader	E	V	S	N
Making a theoretical contribution to science	E	V	S	N
Writing original works (poems, novels, short stories, etc.)	E	V	S	N
Never being obligated to people	E	V	S	N
Creating artistic work (painting, sculpture, decorating, etc.)	E	V	S	N
Keeping up to date with political affairs	E	V	S	N
Being successful in a business of my own	E	V	S	N

25. Rate yourself on each of the following traits as you really think you are when compared with the average student of your own age. We want the most accurate estimate of how you see yourself. (Mark one for each item)

Trait	Highest 10 Percent	Above Average	Average	Below Average	Lowest Percen
Academic ability	○	○	○	○	○
Athletic ability	○	○	○	○	○
Artistic ability	○	○	○	○	○
Cheerfulness	○	○	○	○	○
Defensiveness	○	○	○	○	○
Drive to achieve	○	○	○	○	○
Leadership ability	○	○	○	○	○
Mathematical ability	○	○	○	○	○
Mechanical ability	○	○	○	○	○
Originality	○	○	○	○	○
Political conservatism	○	○	○	○	○
Political liberalism	○	○	○	○	○
Popularity	○	○	○	○	○
Popularity with the opposite sex	○	○	○	○	○
Public speaking ability	○	○	○	○	○
Self-confidence (intellectual)	○	○	○	○	○
Self-confidence (social)	○	○	○	○	○
Sensitivity to criticism	○	○	○	○	○
Stubbornness	○	○	○	○	○
Understanding of others	○	○	○	○	○
Writing ability	○	○	○	○	○

26. How old will you be on December 31 of this year?
(Mark one)

- 16 or younger ○
- 17 ○
- 18 ○
- 19 ○
- 20 ○
- 21 ○
- Older than 21 ○

27. (If you are married, omit the following question)
What is your best guess as to the chances that you will marry

	While in College?	Within a Year after College?
Very good chance	○	○
Some chance	○	○
Very little chance	○	○
No chance	○	○

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Other Recent Publications by the Staff of the Office of Research

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